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SCIENCE

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FRIDAY, DECEMBER 11, 1896.

OPENING OF THE EAST WING OF THE AMERICAN MUSEUM OF NATURAL HISTORY.

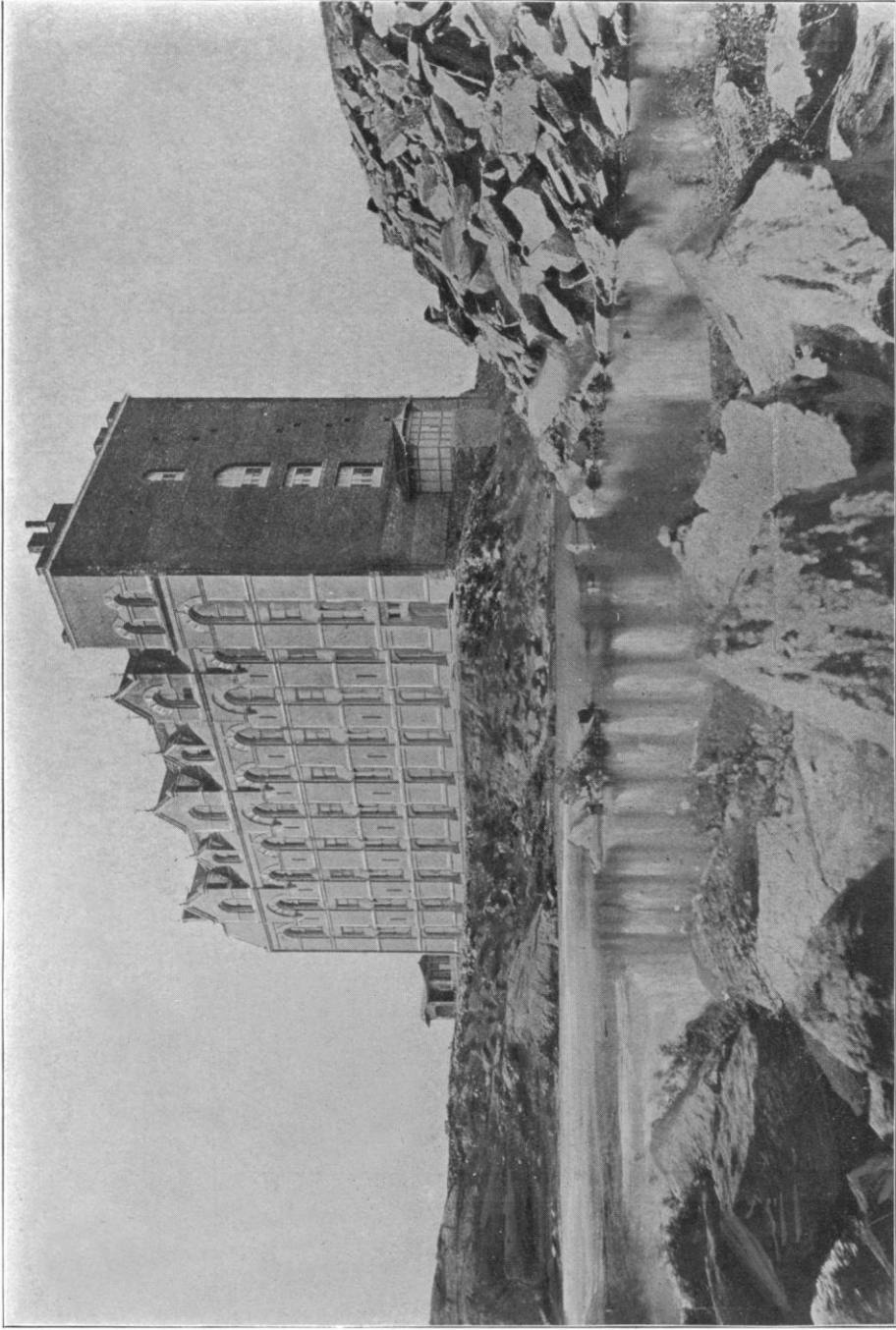
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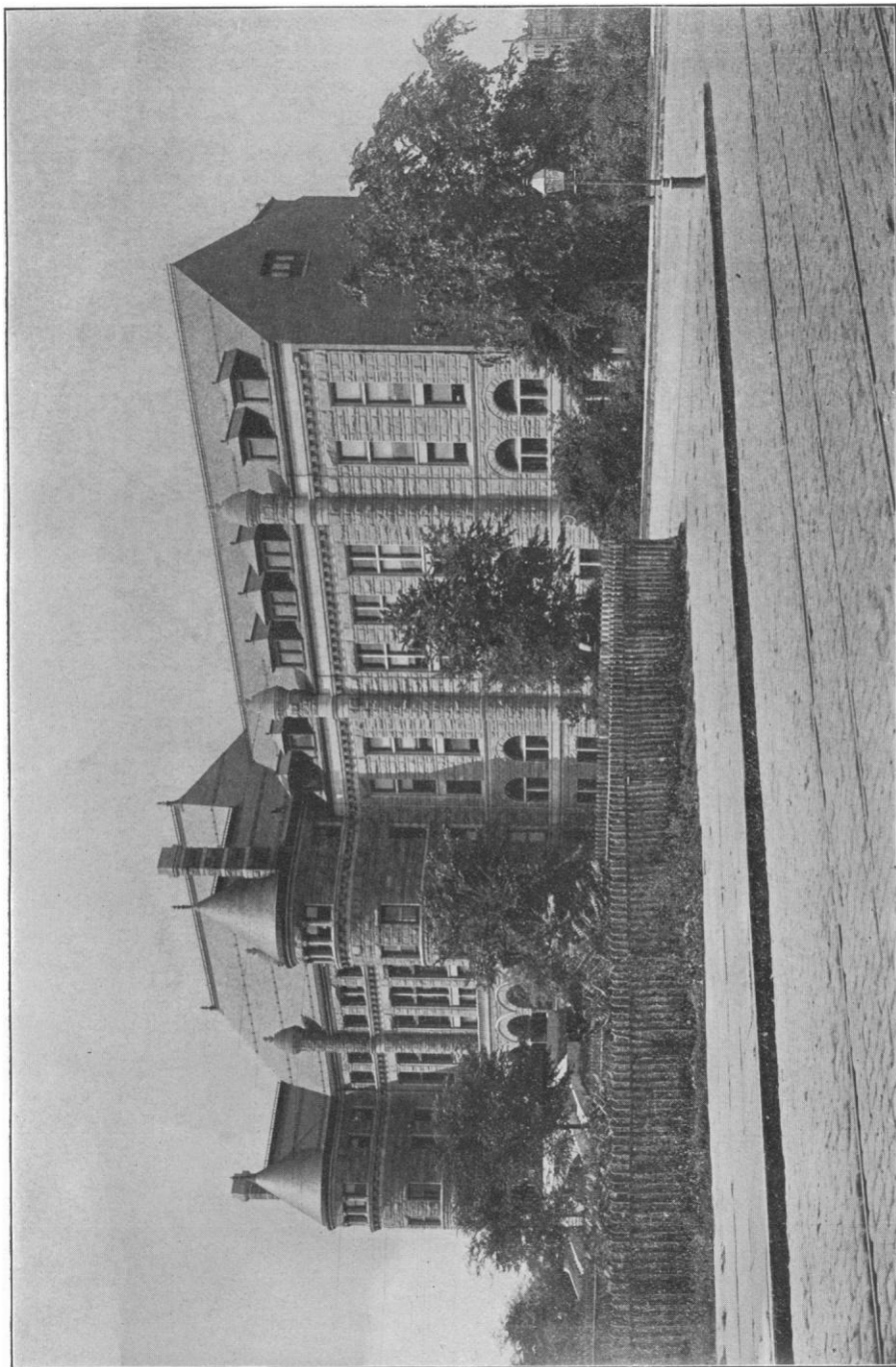
THE opening of the east wing of the American Museum, upon November 30th, marks the latest step in its rapid development. The old wing of the building, completed in 1873, contained 35,020 square feet. With the west wing, now in course of erection, the Museum will have a total exhibition floor space of 148,258 square feet. The construction of the east-corner wing has been authorized by the Legislature, and this will nearly complete the south façade in 1900.

The Twenty-seventh Annual Report of the President, recently issued, shows that the last two years have been of exceptional activity in the development of the collections and educational work of the Museum. During 1895 seventy-five thousand dollars was received from the city of New York for maintenance, and sixty-five thousand dollars from the Endowment Fund; there was, however, a deficit of nearly eight thousand dollars on these two accounts, which was met by special subscription from the Trustees. The expedition in Peru under the direction of Mr. Adolph F. Bandelier, referred to in previous reports, has been eminently successful, and arrangements have been made to continue his work until the close of 1896. The expedition to Honduras was made in cooperation

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VIEW OF MUSEUM BUILDING, 1878.



L. O. LAUDY, PHOTO

VIEW OF MUSEUM BUILDING, WITH EAST WING, 1894.

with the Peabody Museum at Cambridge, the latter Museum having a concession from the government of that country. Mr. Rudolph Weber returned early in the autumn of 1895 from Sumatra, where he has been collecting for the Museum with a fair degree of success. Dr. Lumholtz has continued his explorations among the Indian tribes of the Sierra Madre Mountains, adding greatly both to the collections and to our knowledge of the primitive people in that region. Another interesting collection is from the cliff houses and burial caves of Utah, presented by the Messrs. Hyde, who have not only given their collection to the Museum, but have also arranged to continue their explorations in the Southwest for several years, under the general direction of the Curator. The Peary Relief party sent out in coöperation with the American Geographical Society, included a thorough and skilled collector, and the numerous specimens obtained through this source were added to the Department of Mammals and Birds. Mr. Joseph F. Loubat has supplemented his previous donations with a gift of the widely-known 'Charnay' casts of sculptures from the ruins of Tikal, Guatemala; Manché, Chichen-Itza and Uxmal, Yucatan, and from Palenque and other localities in Mexico.

The Curators in the various departments of the Museum have been occupied for several months preparing for the opening. Every department has received notable additions. The two new halls which were opened for the first time, those of Ethnology and of Vertebrate Paleontology, deserve especial description.

The Fossil Mammal Hall is upon the third floor of the new east wing of the Museum, and has been arranged under the direction of Prof. Henry F. Osborn, Curator, assisted by Dr. J. L. Wortman and Dr. W. D. Matthew. The department was established by the Trustees in 1891, and a gener-

ous annual appropriation from the Museum endowment fund, supplemented by many private gifts, has resulted in bringing together a remarkably complete collection. The field parties under Dr. Wortman have spent from six to eight months each year in the West, exploring especially the Puerco, Wasatch, Wind River, Bridger, Washakie, Uinta and White River formations and the *Aphelops* bed of the Loup Fork. Up to the summit of the Oligocene, the collection is unique, containing, with a few exceptions, more or less complete remains of every genus and species known. Negotiations were early begun for the famous collection of Prof. Cope. This was purchased and removed to the Museum in 1894; it includes 550 types and a number of complete skeletons. Altogether the collection includes twenty-five complete skeletons. Six of these have already been mounted, under the direction of the preparator, Mr. Adam Hermann.

A zoological arrangement of the Hall was early decided upon as the most practicable, also as the most interesting and effective in the education of the public. The entire right, or south side of the Hall, is devoted to the Perissodactyla, beginning with the Titanotheres. The evolution of these animals is illustrated by finely mounted skeletons of *Palaeosyops* and of *Titanotherium*, and by a remarkable display of Eocene and Oligocene types, illustrating the complete development of the skull. Further on are the Rhinoceroses, the three diverse types of cursorial, semi-aquatic and land types being represented by mounted skeletons of *Hyracodon*, *Metamynodon* and *Aceratherium*. The horses complete this series at present.

On the north side of the Hall are the Mesozoic mammals, then the mesotherian Amblypoda and Creodonta, the Tillodontia, Rodentia, Insectivora and Carnivora. The Proboscidea occupy the north center, followed by the Artiodactyla, which are at

present very imperfectly arranged. A special feature of the opening of the Hall is the exhibit of the series of *Ganodonta*, or *Edentates* with enamelled teeth, which demonstrate the early presence, if not the origin, of this great group in North America.

Great attention has been devoted to the labels, and most of the mounted skeletons are accompanied by large water-color drawings, executed by Mr. Charles Knight, which convey an approximate idea of the living form of these various extinct types.

In the ethnological collections an attempt has been made to elucidate all the principal aspects of the culture of each group. Consequently the material is placed in geographical order, each cultural area being treated as a unit. Whenever the collections are sufficiently complete the following subjects are illustrated: Physical types of the people, the relations of man to nature; manufactures and industries; household furnishings; dress and ornament; travel; methods of obtaining food supply by hunting, fishing, stock raising or agriculture; warfare; trade and barter; games music; plastic art; social organization; religion. This plan has been carried out most fully in the largest and most important collection that the Museum possesses, namely, that from the North Pacific coast of America. The larger part of this collection was made by Lieut. G. T. Emmons on his travels in southern Alaska during the past 15 years. The culture of the Indians of British Columbia is represented by material given to the Museum by Mr. Heber R. Bishop and collected by Dr. J. W. Powell, formerly Superintendent of Indian Affairs of British Columbia. In the first section of the exhibit, the relation of man to nature, the use of natural products is illustrated. Objects made of cedar show the multifarious uses of this tree. The uses of other trees and plants, and, further

on, those of animals, stones and metals, are shown in the same manner.

Life-size groups bring home the most important and characteristic occupations of the people. Thus we have one domestic scene showing the preparation of objects made of cedar. A woman is breaking cedar bark which is to be used for making towels, aprons or blankets. Another woman is weaving a mat and rocking her baby, lying in its cradle, which is suspended from a cedar branch. A second group illustrates work on the beach in front of the house. There are men splitting logs and a woman preparing to go on a canoe journey.

Most of the other sections of the exhibit, except one or two, require no further comment. As far as feasible, dress and ornaments are shown on busts or full figures. Thus a figure of a tattooed man will be found; busts fitted with labrets, nose rings and ear ornaments; a figure of a warrior in full costume; and these are supplemented by the figures composing the groups.

Special pains have been taken to illustrate the principles underlying the conventionalism of these tribes. One case is devoted to the general treatment of the animal form, while others show representations of the same animal in various materials and on objects of varying form, thus elucidating the influences of technique and of the form of the object to be decorated upon the conventionalized representations. In another section objects illustrating totemism are shown, while that of religion embraces the paraphernalia of the shaman and of secret societies.

The physical types of the Indians of this region are illustrated by means of busts, photographs and skulls and skeletons.

In this whole systematic exhibit, which fills a series of eight pavilion cases, duplicates which do not help to elucidate the object of the exhibit have been excluded most rigidly. These are combined in a study

collection which is exhibited in desk cases which are so placed that the contents of each case supplement the contents of the pavilion cases.

The collections from the North Pacific coast fill the whole east side of the Ethnological Hall. On the west side we find collections from the interior of British Columbia, from Arctic Alaska, the Peary collection from North Greenland, the Lumholtz collections from northern Mexico and that part of the Sturgis collection which illustrates the culture of the Melanesians. So far as possible, these collections are arranged on the same principle as the preceding one. The collection from the interior of British Columbia is a recent acquisition of the Museum. It illustrates the culture of the Thompson River Indians, and was made by Mr. James Teit. The material is very valuable, since it is the only existing representation of a culture which has almost entirely disappeared, as the Indians during the last twenty years have rapidly adopted customs and costumes of the whites.

The importance of the Peary collection, a gift of Mr. Morris K. Jesup, President of the Museum, lies in the fact that the tribe whose culture it represents has had very little contact with the whites, so that it is more primitive than most material that has recently found its way into museums. The costumes, industries and utensils of this tribe are represented exhaustively.

The value of Dr. Lumholtz's collection from northern Mexico can hardly be overestimated. Here we have for the first time a fullness of material, bringing before us the ideas and products of the inhabitants of the mountain fastnesses of northern Mexico. The people appear hardly influenced by ideas of the whites. Their offerings to their gods, their altars, and their gods show us a culture that reminds us forcibly of the tribes of the Southwest as well as of the ancient Mexicans. It is to

be hoped that the results of Dr. Lumholtz's observations, who undertook his explorations in behalf of the Museum of Natural History, will yield rich information on this interesting region.

The Sturgis collection has been familiar to visitors of the Museum for a long time. Its chief merit lies not so much in a full and systematic representation of the culture of the natives of the South Sea Islands as in the number of beautiful old pieces that it contains. On account of lack of space only part of the collection is exhibited at present.

A number of miscellaneous collections, among which one from the Indians of Guatemala deserves special mention, are temporarily arranged in the gallery of the east wing of the Museum. After the completion of the west wing of the building, which is now in process of construction, these will be removed to the ground floor of the new wing, which adjoins the present Ethnological Hall. Approximately one-half of the ethnological collections of the Museum will remain in storage until the new Hall will become available. After its completion the present Hall will be devoted to North American ethnology exclusively, while other collections will find their home in the new Hall.

A portion of the archæological collection is exhibited in the upper hall of the main building pending the completion of the new west wing. During the past few years these collections have grown rapidly, one of the most noteworthy additions being that from Peru, the result of the explorations made by A. F. Bandelier, under the auspices of Mr. Henry Villard, and later under the Museum. Mr. Bandelier's explorations have given us one of the most complete archæological collections from Peru and Bolivia to be found in any museum in the world. The collection of pre-historic textile fabrics is exceedingly interesting and valuable.

The nucleus for a good Mexican collection has been made, and there are exhibited collections illustrating the culture of several of the civilized tribes of ancient Mexico, the Nahuas, the Zapotecas, Mixtecas, the Mayas, and Tarascos. In northern Mexico the expedition under Dr. Lumholtz has given the Museum a most complete collection of the ceramic art of the old Pueblo stock of Casas Grandes in Chihuahua. In our own country a recent acquisition is that of the Hyde collection of antiquities from the cliff dwellings and ancient pueblos of New Mexico and southern Colorado. This collection will be largely increased by the exploration of ancient pueblos carried on by the Messrs. Hyde during the present year.

There is on exhibition the Mearns collection from cliff dwellings in the Verde valley, Arizona, which is one of the first made in this region. Recent explorations carried on under the auspices of the Museum have given it an interesting series of objects from the village sites and burial places of the Ohio valley. A small portion of the famous Squier and Davis collection from the mounds of Ohio was acquired by the Museum some years ago and is shown in the Ohio valley exhibit. The Jones collection from the Southern States is quite complete and many of the specimens were figured by Mr. Jones in his well-known work on the Southern Indians. A small collection from New York State and the material obtained on Staten Island at a burial place at Tottenville will interest those who are studying the Indian remains in the vicinity of New York. The Chenoweth and J. Bradley James collections from New York City are also shown. California and the West are represented by the Terry collection. During the year the Museum has been carrying on a thorough exploration near Trenton, N. J., in order to secure an authentic collection from this most important region in relation to the very early oc-

cupation of the Atlantic coast by man. Many specimens have been obtained during this exploration, but they cannot be exhibited until the new halls are ready. Owing to lack of space many other interesting objects and collections are in storage, awaiting the completion of the new wing.

On the walls of the ground floor of the main building is the well-known collection of Charnay casts of prehistoric sculptures from ancient cities in Mexico and Central America, recently presented by the Duke of Loubat. Among these is the famous Tablet of the Cross from Palenque.

THE INFLUENCE OF LIGHT UPON THE DISCHARGE OF ELECTRIFIED BODIES.

OF the many interesting phenomena that are continually being discovered in all branches of physical science, none are more important than those which point to the existence of hitherto unknown relationships between the different branches of physics; for it is by the careful study of such relationships that we may hope to proceed most rapidly with the further development of the science. This fact has been generally recognized by investigators, and the attempt to find new relations between apparently isolated classes of phenomena has led in the past to many important discoveries. The discovery by Oersted of the magnetic action of the current may be cited as one well known example.

In recent years the theory of light has gained greatly by the recognition of the close relationship between optical and electro-magnetic phenomena. The discovery by Faraday of the magnetic rotation of the plane of polarization afforded the first experimental proof of a relation between light and magnetism; the fact that certain dielectrics become doubly refracting when subjected to electrostatic stress (Kerr) indicated a connection between light and electrical phenomena; while the experi-